

REMARKS

Claims 9, 27 and 29 have been amended to include the feature of "the signal demodulated by the demodulator being selected according to the number of levels of modulation of the data stream and the receiver's signal to noise ratio".

Claim 21 has been cancelled.

Claim Rejections – 35 USC § 102**IEEE 802.11a Standard**

Applicants submit that IEEE 802.11a standard does not disclose or even suggest the feature of a "signal comprising a plurality of data streams modulated at different respective modulation levels the data stream's modulation level selected according to the signal to noise ration of the intended receiver" as claimed in Claim 9.

Rather Applicants submit that one skilled in the art on reading the IEEE standard will learn to set a single appropriate set of modulation at the beginning of transmission and then use them for the entire transmission. Thus they would learn that a choice between transmitting data at relatively low rates to the far terminal or at relatively high rates to the near terminal had to be made when transmission of data started.

In section 17.3.11 of the IEEE standard the PLCP transmit procedure is outlined. In paragraph 3 of this section it is stated that the "PLCP shall issue PMD_TXPWRLVL and PMD_RATE primitives to configure the PHY". The RATE field conveys information about the type of modulation and the coding rate as used in the rest of the packet (17.2.2.2) and the required modulation parameters can be discovered from the data rate using Table 78.

Thus in the IEEE standard the subcarriers "shall be modulated by using BPSK, QPSK, 16-QAM or 64-QAM modulation" (see 1st paragraph section 17.3.5.7).

Nowhere does the IEEE standard disclose or even suggest having transmitting data intended for separate receivers at different modulation levels according to the signal to noise ratios of the receivers. Therefore, Applicants submit that Claim 9 is not anticipated by the IEEE 802.11a standard. Applicants also submit that Claims 10 and 12 are not anticipated by the IEEE 802.11a standard at least by virtue of their dependencies.

Claims 27 and 29 have also been amended to recite the feature of a "signal comprising a plurality of data streams modulated at different respective modulation levels the data stream's modulation level selected according to the signal to noise ration of the intended receiver". Therefore Applicants submit that Claims 27 and 29 are not anticipated by the disclosure in the IEEE 802.11a standard. Applicants also submit that Claim 28 is not anticipated by the IEEE 802.11a standard at least by virtue of its dependency.

Qiao

Applicants respectfully submit that Qiao does not show the feature of a "signal comprising a plurality of data streams modulated at different respective modulation levels the data stream's modulation level selected according to the signal to noise ration of the intended receiver" as claimed in Claim 9.

Qiao is concerned with adding link adaptation to the existing MAC protocol. A link adaptor is described as providing three levels of functionality it: "estimates the current SNR condition based on monitoring the channel conditions and the previous transmission results... selects the optimal combination of the PHY mode and ... fragment size based on the SNR estimation...changes the PHY mode for the next

MPDU transmission if there is any variation of the SNR condition" (the fragment size will not be changed during a transmission) (Page 5 left column last paragraph).

It can therefore be seen that one skilled in the art on reading Qiao would only learn to make a choice between transmitting data at relatively low rates to the far terminal or at relatively high rates to the near terminal. Qiao does not disclose or even suggest receivers which receive data that has had its level of modulation selected according to the receiver that it is intended to be transmitted to as claimed in Claim 9.

Applicants therefore submit that Claim 9 is not anticipated by Qiao. Applicants also submit that Claims 10 and 12 are not anticipated by Qiao at least by virtue of their dependencies.

Claims 27 and 29 have been amended and recite the feature of a "signal comprising a plurality of data streams modulated at different respective modulation levels the data stream's modulation level selected according to the signal to noise ration of the intended receiver" as recited in Claim 9. Therefore, Applicants respectfully submit that Claim 29 is not anticipated by Qiao. Applicants also submit that Claim 28 is not anticipated by Qiao at least by virtue of its dependency.

Schafer

Applicants respectfully submit that Schafer does not disclose "a signal sent to a plurality of receivers, the signal comprising a plurality of data streams modulated at different respective modulation levels...each receiver demodulating a first data stream from the signal and attempting to demodulate at least one further data stream from the signal" as claimed in Claim 9.

Rather Schafer describes "a system and method for providing adjustable levels of information density in a communicated data stream in response to monitored communication link conditions" (Abstract). The link conditions are monitored in order to

provide adjustment of the communicated information density (see Column 5 lines 34 to 36).

Schafer only discloses that a suitable information density is selected by the link. It does not disclose or even suggest that multiple receivers capable of demodulating the signal at different modulation levels are transmitted data within the same signal and retrieve data according to the modulation levels that they are able to demodulate because of the receiver's signal to noise ratio. Applicants therefore submit that one skilled in the art on reading Schafer would only learn how to make choices between transmitting data at relatively low rates to the far terminal or at relatively high rates to the near terminal.

Applicants therefore respectfully submit that Claim 9 is not anticipated by Schafer. Applicants submit that Claims 10 and 12 are not anticipated by Schafer at least by virtue of their dependencies.

Claim 27 has been amended to recite that the signal has a plurality of data streams intended for a plurality of receivers "each data stream being modulated according to the intended receiver's susceptibility to noise". Therefore, Applicants submit that for the same reasons as given with reference to Claim 9, amended Claim 27 is not anticipated by Schafer. Applicants submit that Claim 28 is not anticipated by Schafer at least by virtue of its dependency.

Claim 29 has been amended and recites all the same features as amended Claim 9. Therefore, Applicants respectfully submit that Claim 29 is not anticipated by Schafer.

Trachewsky (9, 10, 12, 21, 22, 27 to 29)

Claim 9 recites the feature of a "signal comprising a plurality of data streams modulated at different respective modulation levels the data stream's modulation level selected according to the signal to noise ration of the intended receiver".

Applicants submit that Trachewsky does not disclose this feature. Rather, Trachewsky only discloses that 4Mbaud QAM modulation and 2Mbaud Frequency Diverse QAM..., [is used] with 2 to 8 bits per Baud constellation encoding, resulting in a PHY-layer payload modulation rate that ranges from 4Mb/s to 32Mb/s" (Column 10 lines 50 to 55). Trachewsky does not disclose how the data streams modulation is selected, and does not suggest that the signal may be made up of datastreams intended for different receivers having differing signal to noise ratios.

Trachewsky, when talking about the modulations of data transmitted through the system refers to, and incorporates by reference, US Patent Application 09/169,552 (Ojard). Ojard states that "the theoretical channel capacity of transmission channel 806 is the theoretically maximum bit rate that can be transmitted through transmission channel" (Column 7 lines 49 to 52). Ojard describes several different modulation types such as APSK and QAM; however, Ojard does not disclose a signal where the data contained within the signal is intended for two or more different receivers.

Applicants therefore submit that Claim 9 is not anticipated by Trachewsky. Applicants also submit that Claims 10 and 12 are not anticipated by Trachewsky at least by virtue of their dependencies.

Claims 27 and 29 have been amended and recite the feature of a "signal comprising a plurality of data streams modulated at different respective modulation levels the data stream's modulation level selected according to the signal to noise ration of the Intended receiver" as claimed in Claim 9. Therefore, Applicants respectfully submit that Trachewsky does not anticipate Claim 29. Applicants also submit that Trachewsky does not anticipate Claim 28 at least by virtue of its dependency upon Claim 27.

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Claim Rejections – 35 USC § 103

None of the embodiments in Ishio disclose or even suggest a "signal comprising a plurality of data streams modulated at different respective modulation levels the data stream's modulation level selected according to the signal to noise ration of the intended receiver" as claimed in Claim 9. Rather, Ishio only discloses modulating signals using different methods such as ASK, PSK, FSK and QPSK and then transmitting the signals to a receiver.

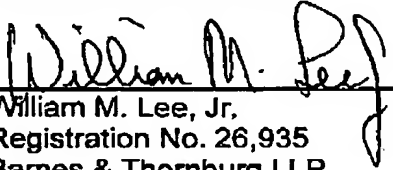
As none of the IEEE 802.11a standard, Qiao, Schafer, Trachewsky or Ishio disclose this feature of Claim 9, Applicants submit that amended Claim 9 would not have been obvious in view of the combination of any of the IEEE 802.11a standard, Qiao, Schafer or Trachewsky with Ishio.

For the same reasons Applicants submit that Claims 27 and 29 would not have been obvious in view of the any of the combinations of prior art cited by the Examiner. Applicants submit that Claims 10 to 12 and 28 would not have been obvious in view of the combination of the IEEE 802.11a standard and Ishio at least by virtue of their dependencies.

Given the above, it is submitted that the application is in condition for allowance, and such action is solicited.

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Respectfully submitted,


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